

Annual Report

Advisory Committee
on Heavy Oil and Oil Sands
Development

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Advisory Committee on Heavy Oil and Oil Sands Development

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**Advisory Committee on Heavy Oil
and Oil Sands Development**



Office of the Minister

Legislature Building, Edmonton, Alberta, Canada T5K 2B6 403/427-3740

December 31, 1989

To Her Honor
Helen Hunley
Lieutenant-Governor
Province of Alberta

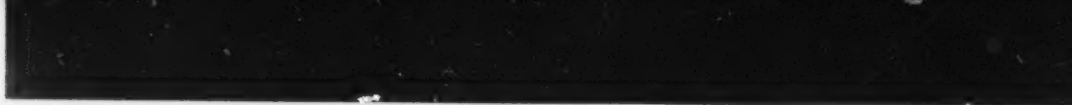
Madam:

I have the honor to transmit the 1989 Annual Report
of the Advisory Committee on Heavy Oil and
Oil Sands Development.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Rick Orman".

Rick Orman
Minister of Energy





LEGISLATIVE ASSEMBLY
ALBERTA

December 31, 1989
To the Honourable Rick Orman
Minister of Energy

Sir:

I have the honor to transmit the 1989 Annual Report
of the Advisory Committee on Heavy Oil and
Oil Sands Development.

Respectfully submitted,

A handwritten signature in cursive script that reads "Bill Payne".

W.E. (Bill) Payne, MLA
Chairman

Statement of Chairman

Looking back over the past six years, it is apparent that much has been accomplished in the steps taken to achieve the purpose and mandate of the Advisory Committee on Heavy Oil and Oil Sands Development. The Advisory Committee has been successful in opening up lines of communication between communities, industry and government. Workshops have been held in a number of communities over the years providing a "one-window" approach to government and the government process and encouraging improved dialogue. Contact has been maintained with communities and industry through both upswings and downturns in the economy.

The past year has once again been characterized by uncertainties in the industry. I hasten to add, however, that the picture is not all doom and gloom. Some noteworthy projects are moving forward towards operational status. These include the Bi-Provincial Upgrader facility near Lloydminster and the OSLO project near Fort McMurray. These will augment the on-going production activity in the Athabasca, Peace River and Cold Lake regions of Alberta. I note a new sense of optimism in Alberta's commitment to the development of its energy sector. The Honourable Rick Orman, Minister of Energy, emphasized this outlook in his address to the Annual Canadian Oil and Gas Symposium in Toronto, on November 29, 1989, outlining investment opportunities in the heavy oil and oil sands sectors.

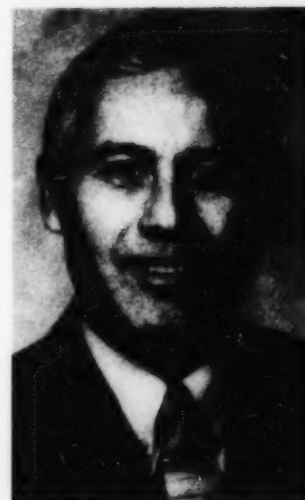
In addition, the province's new lease tenure policy is expected to facilitate development. In general, the policy will encourage the active development of Alberta's oil sands resources by existing leaseholders or they may relinquish the opportunity to new investors. The new policy will also encourage bitumen upgrading within the province. In anticipation of the new policy, companies have already approached the government with promising development plans.

Operations of the Advisory Committee were temporarily suspended during the provincial election in the spring pending re-appointment and re-assignment of all Provincial Committees. Also, we learned of the establishment of a provincially appointed interdepartmental committee known as the Accelerated Growth Communities Coordination and Information Committee. The potential for overlap of responsibilities was explored in depth. It was determined that the Advisory committee with its "public outreach" function would still continue to perform a useful role and that, in fact, the activities of the two groups will be complementary. Occasional joint meetings of the two committees and ongoing contact at the staff level are expected to foster this association.

Subsequent sections of this Annual Report summarize the activities undertaken by the Advisory Committee during the past year.

In closing I would like to thank the Committee members and the various industry, government and community officials for their interest and commitment in our shared effort to promote open communication among all those impacted by heavy oil and oil sands development.

Bill Payne, MLA
Chairman



Heavy Oil and Oil Sands — A Decade in Review

During the 1970s heavy oil and oil sands commercial development was primarily concentrated in the Fort McMurray area. In the 1980s, however, developments covered a much larger area including Wolf Lake, Lindbergh, Cold Lake, Bonnyville, Lloydminster, Elk Point and the Peace River area.

Over the past ten years, significant capital expenditures have taken place despite often volatile price fluctuations on the world oil market. In 1983 Esso's Cold Lake project saw the beginning of a multi-phase development, the first two of which commenced production in 1985. That year also saw the completion of BP Canada's Wolf Lake first phase of commercial production. At the same time Shell Canada's Peace River project (Cadotte Lake) received ERCB approval as did Amoco's Lindbergh deposit.

Development activity in the heavy oil and oil sands areas continued at a healthy pace during 1985 and early 1986. Although six commercial crude bitumen in situ recovery schemes were approved by the ERCB, they were either put on hold or shelved by mid 1986. That same year saw the initial construction of AOSTRA's Underground Test Facility (UTF) at Athabasca. This pilot project employs new technology involving an underground steam stimulation system which has resulted in a very encouraging production performance.

The following year, 1987, saw little in the way of major project development although Syncrude announced a major expansion of its surface mining operation and the OSLO group showed interest in developing in the Kearl Lake area. Other minor expansions to existing operations took place in the Wolf Lake and Cold Lake areas. Shell announced its intention to quintuple the size of its Peace River project.

Major announcements in the years 1988 and 1989 included the go ahead for the OSLO project, the Bi-Provincial Upgrader at Lloydminster and continued development by Shell near Peace River (Cadotte Lake).

Despite extreme economic variances, the 1980s saw substantial progress in the technology of producing and handling heavy oil and synthetic oil from oil sands. Specific examples of increased technology include improved energy efficiency, higher in-situ recoveries, reduced water needs and increased recycling, higher oil sands extraction efficiencies at reduced temperatures, reduced impact on the environment and increased cost effectiveness in all segments.

It is anticipated that the combination of technological advances and stabilization of world oil prices will generate renewed optimism and a resurgence in development activity in the upcoming decade.

Role of the Committee

established by the Department of Energy and Natural Resources Amendment Act in 1983, the Advisory Committee on Heavy Oil and Oil Sands Development convened its first meeting on July 4, 1983. The establishment of the Committee was re-confirmed by the Department of Energy Act, 1986.

The initial mandate of the Advisory Committee was to expire on December 31, 1987 but was granted an additional 3 year mandate by Order in Council until December 31, 1990 (O/C 245/87).

The Advisory Committee has over the years expanded its role from one of monitoring growth associated with heavy oil or oil sands development to one of facilitating the orderly and economic growth of impacted communities. This role continues to be accomplished through direct interaction with community and industry leaders.

It is of interest to note that although the name of the Advisory Committee may imply a more "technical" membership and mandate relating to heavy oil and oil sands projects, the Committee in fact is primarily concerned with socio-economic community based issues.



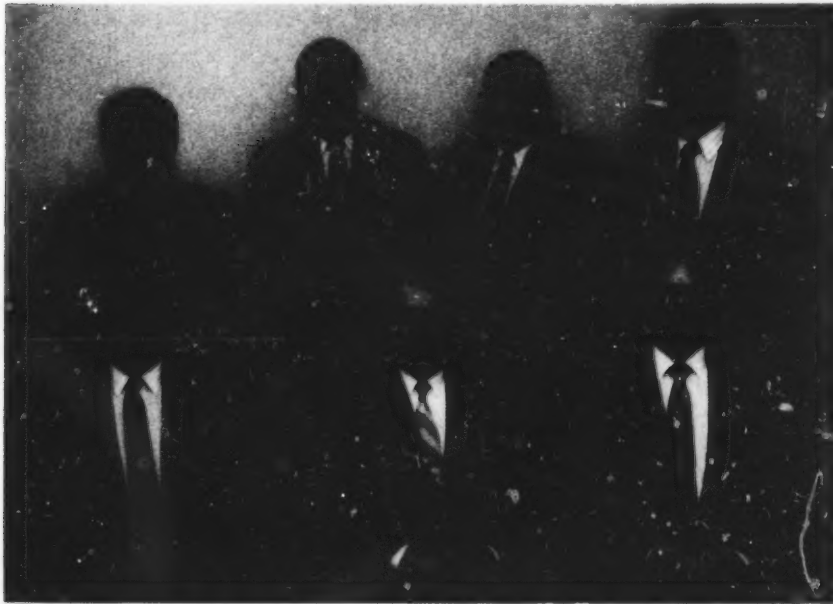
Committee Membership

The legislation that established the Advisory Committee on Heavy Oil and Oil Sands Development also prescribes its membership to ensure balanced representation.

The Chairman is a Member of the Legislative Assembly of Alberta while the Vice-chairman is a senior official of Alberta Municipal Affairs. Three members are appointed to represent residents of heavy oil and oil sands areas.

Currently these members represent the communities of Fort McMurray, Bonnyville and Slave Lake. Industry and the Energy Resources Conservation Board (ERCB) are represented.

The membership reflects a high degree of expertise both in the technical aspects of heavy oil development as well as the socio-economic issues associated with heavy oil and oil sands projects.



See inset.

Members of the Advisory Committee on Heavy Oil and Oil Sands Development:

Seated (left to right): Jack Thomas, Alberta Municipal Affairs, Vice-Chairman; Bill Payne, MLA, Chairman; Ralph Evans, Energy Resources Conservation Board.

Standing (left to right): Robin Vogelesang, Acting Executive Director; Dick Aberg, Industry; Don McGladdery, Fort McMurray; Neil Gilliat, Slave Lake.

Inset: Bill Slawuta, Bonnyville

Resources and Development

The trend of unstable markets and relatively low oil prices continued through most of 1989. As a result, the cautious mood of oil sands and heavy oil operators, which led in 1988 to severe cutbacks in experimental operations and shelving of commercial project plans, continued into 1989 with additional suspensions of existing projects and further postponements of expansions and new schemes.

In the Athabasca Oil Sands Area, the proposed C-H Synfuels dredging and extraction test of the oil sands on the Horse River near the City of Fort McMurray was put on hold pending a better economic environment.

The team review of the Suncor Inc. Resources Group (Suncor) debottlenecking application,

which would increase synthetic crude production from 53,000 BPCD to 73,000 BPCD*, continued. However, the slowdown of capital spending remained in effect. Suncor showed some potential activity by filing a Preliminary Disclosure document with the Alberta government for a new mine on the east side of the Athabasca River, across from Suncor's existing mine and plant.

The OSLO (Other Six Leases Operation) group plans for a \$4.2 billion mining-extraction-upgrading project near Kearl Lake were under review by an Application Review Team (OSLO ART). The team, made up of OSLO, ERCB, Alberta Government Departments of Environment, Forestry, Lands and Wildlife, and Energy, the Fort McKay Community, the Athabasca Native Development Corporation,

* Barrels per calendar day





the City of Fort McMurray and the Federal Environmental Assessment Review Office, will assess all major technical, environmental and socio-economic impacts prior to the actual application being submitted.

The OSLO Group received approval for a bulk sample test pit in April 1989. The oil sands samples taken from this test pit will be extensively tested in a lab scale test facility in Calgary, as a preliminary step in selection and detailed design of a full scale extraction process.

A related company, OSLO New Ventures with support from AOSTRA, continued to test the dredging concept for oil sands removal and cold water extraction using patented chemical addition. The process, if successful, holds considerable promise for greatly reduced tailings volumes, and more easily reclaimed tailings material.

Syncrude Canada continued to show record production levels at the Mildred Lake Plant. However, the \$3.9 billion expansion of its mining, extraction and upgrading operations, which received ERCB approval in 1988, remained on hold. The Syncrude owners are in large measure the same companies that own OSLO, and it remains to be seen whether both projects would proceed simultaneously. In the Wabasca area, CS Resources took over the Gulf experimental horizontal wells and received approval to add 5 new horizontal wells to the existing 8.

In the Cold Lake Oil Sands Area Esso Resources completed the construction of the central processing facilities for Phases 7 and 8, the field drilling and field equipment for Phases 7 and 8, and partially completed the plant construction for Phases 9 and 10. However, the expansion remains uncommissioned as Esso awaits higher, more

stable oil prices. The ERCB approved a \$10M coal combustion test at Esso's Cold Lake Production Project (CLPP) site, utilizing the Low NOx/SOx burner, and construction was underway late in the year.

At the Dome (now Amoco) Primrose commercial scheme thermal activity remained on hold but approval to test primary production through a horizontal well was received. If successful it will allow Amoco a more gradual start-up of a commercial scheme and provide cash flow earlier.

The Suncor Burnt Lake commercial in situ scheme remained inactive as did the 12 well Norcen Hilda Lake experimental project which received approval in February 1989. During the year Excel Energy Inc. announced the abandonment of its in situ operation at Ardmore.

At the BP Wolf Lake commercial project the commissioning of Wolf Lake Phase 2 occurred and the combustion pilot was started up. BP

announced in September it was looking for a buyer for all or part of its 50 per cent share in the Wolf Lake Project. The other 50 per cent is held by Petro Canada.

In the oil sands areas in 1989, there were 11 approved commercial schemes, with some degree of activity at 8 of the 11, and bitumen or synthetic crude oil production in significant quantities (over 1,000 m³ per day) at 5 of them. Experimental projects totalled 33 with 2 testing mining related recovery methods and the remainder testing thermal in situ techniques.

In the heavy oil areas, there were 10 active thermal schemes and 7 schemes utilizing various other displacement methods. There was a surge in the number of horizontal well developments in the heavy oil areas and the conventional oil areas, as operators seek economical methods to improve recoveries and reduce costs.

Alberta Oil Sands and Heavy Oil Areas Active Thermal Projects

PROJECTS

Athabasca

- 1. Syncrude Mildred Lake
- 2. Suncor Mildred Lake
- 3. AOSTRA UTF
- 4. OSLO Ft. McMurray
- 5. Canterra Kearn Lake
- 6. OSLO Kearn Lake
- 7. Amoco Gregoire Lake
- 8. Unocal McLean (2)
- 9. CS Resources Pelican
- 10. Chevron Hoole
- 11. Amoco Brintnell
- 12. Petro Can Hangingstone
- 13. AEC Ipiatik Lake

Peace River

- 14. Shell Cadotte Lake

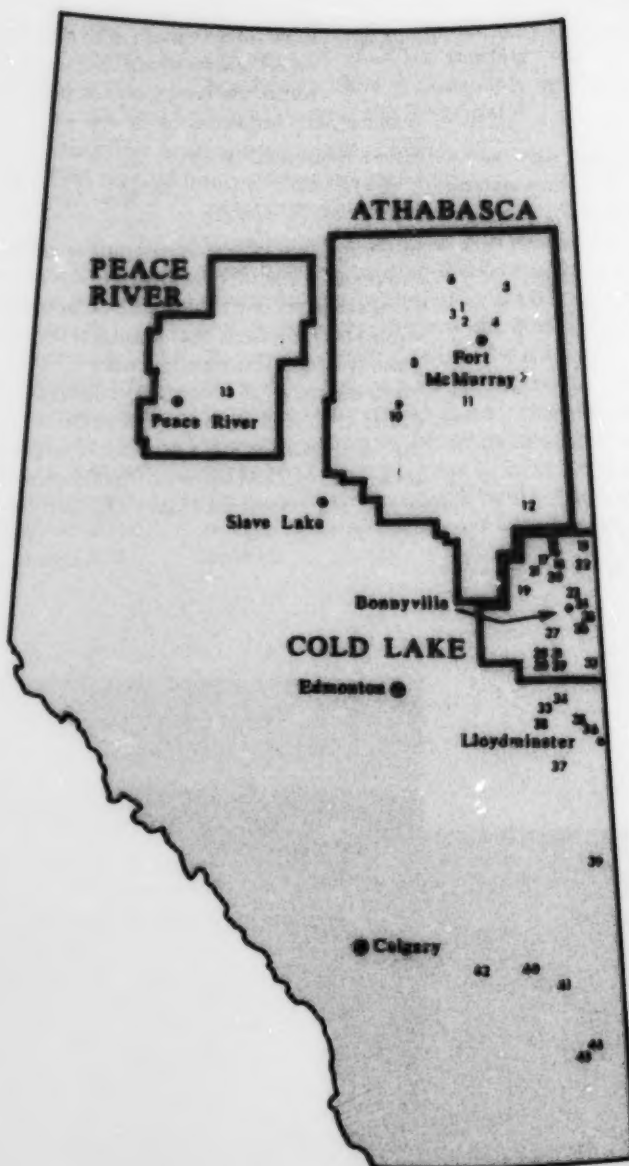
Cold Lake

- 15. Husky Fisher Creek
- 16. Suncor Burnt Lake
- 17. Amoco Primrose
- 18. B.P. Wolf Lake (2)
- 19. Esso Cold Lake (3)
- 20. Norcen Hilda Lake
- 21. Canoxy Manitokan
- 22. Husky Tucker Lake
- 23. Mobil Wolf Lake (2)
- 24. Bow Valley Marie Lake
- 25. Excel Ardmore
- 26. Koch Fort Kent
- 27. Suncor Fort Kent
- 28. Amoco Beaverdam (2)
- 29. Murphy Lindbergh (2)
- 30. Amoco Lindbergh (2)
- 31. PanCanadian Lindbergh
- 32. Westmin Lindbergh (3)
- 33. Mazzie Frog Lake (2)

Heavy Oil

- 34. Canoxy Morgan
- 35. Home Lloydminster
- 36. Can N.W. Wildmere
- 37. Amoco Morgan
- 38. PanCanadian Provost
- 39. Norcen Provost
- 40. Can N.W. Atlee-Buffalo
- 41. AEC Suffield
- 42. PanCanadian Countess
- 43. PanCanadian Medicine Hat

• Commercial Projects



Committee Activities and Operations

Again in 1989, the Advisory Committee's main activities centred on its ability to act as a neutral forum on issues confronting those communities impacted by heavy oil or oil sands development. As in previous years, heavy oil activity could best be described as cautiously optimistic.

In recognition of the development of the Bi-Provincial Upgrader facility, the Advisory Committee felt a meeting in Lloydminster would be beneficial and arranged such in January 1989. The meeting with representatives of council and administration of the City of Lloydminster, and the MLA for the area, touched on a number of important issues facing Lloydminster. Topics included the relationship between Husky Oil and the City,

student accommodation and curriculum development at Lakeland College, industrial tax sharing, highway development between Lloydminster and the Cold Lake area and government assistance for sewer and water capital expenditures.

The topics raised in the meeting varied widely but did point to the ability of the Advisory Committee to act as a "sounding board" and to direct the enquiries to the appropriate body for response.

In January also, the industry representative of the Advisory Committee, Mr. Aberg, addressed the Canadian Institute of Mining in Calgary on the topic of the function of the Advisory Committee on Heavy Oil and Oil Sands Development.

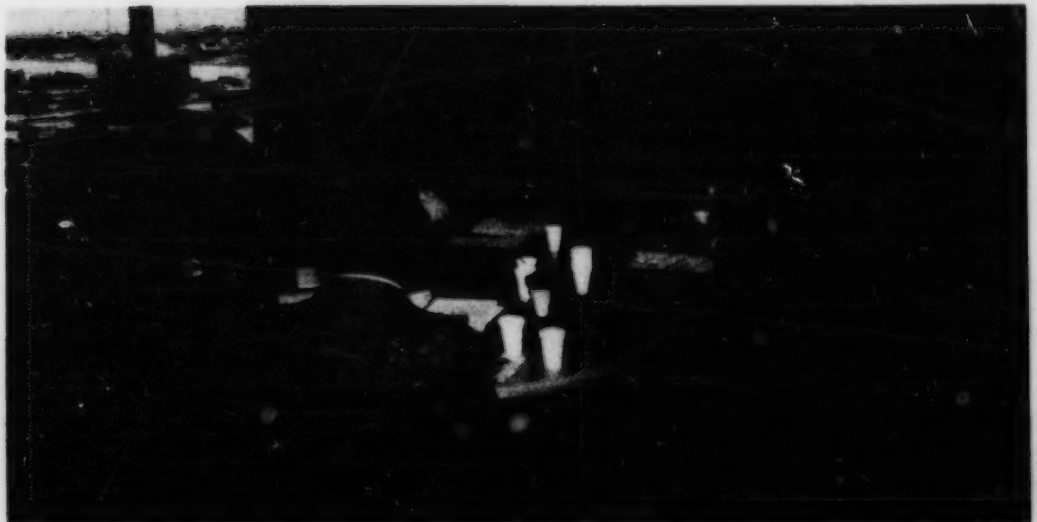


The provincial election in March 1989 triggered the statutory requirement that the Chairman of the Advisory Committee, as with all other government appointed committees, resign his position until new appointments are made following the election. This action left the Committee without a Chairman from February 20 until his re-appointment in April 1989.

The Advisory Committee re-examined its mandate following a Cabinet decision to form a committee entitled "Accelerated Growth Communities Coordination and Information Committee." After considerable discussion, the Advisory Committee reached a consensus that its mandate, limited to heavy oil and oil sands and its community based make-up, would still fulfill a needed function. It was learned that the Accelerated Growth Committee would be made up strictly of senior civil servants and

have no public outreach component in its terms of reference. The Advisory Committee also felt that an annual meeting with Accelerated Growth Committee members would be mutually beneficial.

The Advisory Committee met with proponents of the OSLO project to discuss socio-economic aspects of the project. Since the OSLO project impacts most heavily on Fort McMurray, it was clear that the meeting should be held in that community in order that local civic officials could attend the discussions. Topics covered during the meeting ranged from socio-economic impacts such as housing to physical such as transportation routes. Also discussed was an explanation of the membership and function of the OSLO Application Review Team, a committee struck by the ERCB to review all issues associated with the OSLO project.



Summary of Committee Meetings and Travel

January 23, 1989 — Lloydminster

The Advisory Committee met with representatives of the City of Lloydminster, including the Mayor and City Commissioner. Also in attendance was the MLA for Lloydminster, Doug Cherry, and Ed Jensen representing the Bi-Provincial Upgrader Joint Venture Board. Primary focus of the meeting was the "state of preparedness" of Lloydminster to absorb growth associated with the Bi-Provincial Upgrader project. Other topics included Lakeland College student housing, industrial tax sharing and transportation issues.

February 9, 1989 — Edmonton

This meeting saw the members deal with a variety of topics including a review of the Lloydminster meeting, the finalization of the 1988 Annual Report and a discussion on the potential overlap between the Advisory Committee on Heavy Oil and Oil Sands Development and the recently formed committee established by Cabinet entitled "Accelerated Growth Communities Coordination and Information Committee."

June 30, 1989 — Edmonton

At the first meeting following the spring provincial election, the members were informed of the re-appointment of Chairman B. Payne to the Advisory Committee. Other items discussed during the meeting were the distribution of and response to the 1988 Annual Report, the Bi-Provincial Upgrader and OSLO projects, continued discussion on the potential overlap of the Accelerated Growth Committee and a response to a query received from the City of Lloydminster from the January 23 meeting.

August 15, 1989 — Edmonton

The major items included a discussion of the proposed North Saskatchewan River pipeline, a staff report on functional overlaps of the Advisory Committee and Accelerated Growth Committee and future mandate of the Advisory Committee and concluding with preparations for a meeting with representatives of the OSLO project.

September 29, 1989 — Fort McMurray

Advisory Committee members met with the mayor and the city manager of Fort McMurray and representatives of the OSLO project. The primary purpose of the meeting was to review the potential social impacts of the OSLO project on Fort McMurray. Following the information meeting, the members conducted a site inspection of the OSLO bulk extraction facility and cold water extraction test facility.

October 30, 1989 — Edmonton

This meeting dealt with a review of the issues raised during the Fort McMurray trip, an update on the first meeting of the Accelerated Growth Committee, the North Saskatchewan River pipeline and several items dealing with the industry generally.

December 5, 1989 — Edmonton

The major topics discussed were the North Saskatchewan River pipeline, road access to the OSLO site, the 1989 Annual Report, meetings held with Honourable Raymond A. Speaker, Minister of Municipal Affairs, and the 1990 plans of the Advisory Committee.